ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM

Plant Abstract **Element Code:** PDAST8H1C0
Data Sensitivity: Yes

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Senecio franciscanus* Greene
COMMON NAME: San Francisco Peaks Groundsel, San Francisco Groundsel, San Francisco Peaks ragwort
SYNONYMS: *Packera franciscanus* (Greene) W.A. Weber & A. Löve
FAMILY: Asteraceae

AUTHOR, PLACE OF PUBLICATION: E.L. Greene, Pittonia 2: 19. 1889.

TYPE LOCALITY: USA. Arizona. Mt. San Francisco, 3658 m.

TYPE SPECIMEN: HT: US-47604. E.L. Greene s.n., 10 July 1889. IT: NY.

TAXONOMIC UNIQUENESS: Between 2,000 and 3,000 species of this genus found worldwide, approximately 120 taxa in temperate North America, about 26 species in Arizona. Epple (1995) reports 24 species of *Senecio* in Arizona. This plant was formally in the Family Compositae. It is treated as *Packera franciscana* by Kartesz (1999); often has been called *Senecio franciscanus* (e.g., Kartesz 1994).

DESCRIPTION: A dwarf alpine perennial, 3.0 to 10.0 cm (1.2 to 4.0 in.) tall, in tufts to 7.6 cm (3 in) wide. Stems generally arise singly from the upturned ends of creeping rhizomes, or sometimes loosely clustered. Leaves are alternate, grayish green, and edged in reddish purple; oval to roundish, downy, crinkly, and toothed; to 5 cm (2 in) long. Basal leaves obovate, petiolate and deeply dissected; stem leaves usually reduced to bracts. Phyllaries, petioles, involucre bracts, and undersurface of leaves are reddish-purple. Small yellow flowers heads about 1.0 cm. (0.4 in.) wide, borne singly or up to six in a compact cluster, with each containing 8 to 13 yellow ray flowers. Seeds are glabrous.

AIDS TO IDENTIFICATION: General vegetative appearance of *S. franciscanus* is somewhat similar to that of *Heuchera versicolor* f. *pumila*. On closer inspection it is obvious that leaf blades of *Heuchera* are subcordate and very shallowly lobed and toothed, while leaves of *Senecio* are obovate and deeply lobed (Phillips, 1980).

ILLUSTRATIONS: Line drawing of plant in flower (USFWS).
Color photo of Holotype Collection (USNM, Accessed 2/24/2004 from http://rathbun.si.edu.botany/types/fullRecords.cfm?myFamily=)

Color photo (Janette Milne, CPC No. 3928, Accessed 2/4/2004 from http://ridwaydb.mobot.org/cpcweb/CPC_ProfileImage.asp?FN=3928a)
Color photo (Sue Rutman, *in* USFWS web site Accessed 2/4/2004 from http://arizonaes.fws.gove/san.htm)
Line drawing (Falk, Jenkins et al. 2001)
Color photos of plant and habitat (Sue Rutman/FWS, *in* Falk, Jenkins et al. 2001)
Color photo (Lewis Epple, *in* A.O. Epple 1995: pl. 429).

TOTAL RANGE: San Francisco Peaks, Coconino County, Arizona.

RANGE WITHIN ARIZONA: On the San Francisco Peaks in Coconino County, populations occur on the Humphreys, Agassiz, Fremont, and Doyle peaks, and along the north rim that extends to the northeast from Humphreys Peak (U.S. Fish and Wildlife Service, 1987).

SPECIES BIOLOGY AND POPULATION TRENDS

GROWTH FORM: Herbaceous perennial.

PHENOLOGY: The growing season is from June to September when the mean air temperature is 48º F (9º C). Flowering occurs from July and August. NatureServe (2003) reports flowering from August to early September. Fruits mature in mid-September to early October.

BIOLOGY: A composite, the San Francisco Peaks groundsel is a member of the sunflower family that grows low to the rocky ground where it is found. Reproduction is primarily vegetative by mat-forming rhizomes although sexual reproduction also occurs from mature achenes. "Frost action and gravitational movement break up the clones, the separate plants further spreading before breaking up, etc., in a continual cycle. Total ground-cover by the groundsel rarely exceeds 10 percent, and is generally between 2 percent and a trace. Soil moisture seems to be the dominant limiting factor. Fruits mature in mid-September to early October. The plants enter winter dormancy by mid-October. Plants in more protected areas produce more flowers and fruits than do those in exposed sites" (Johnson 1990). "The species occupies a minimum of 325 acres within the approximately 1,200 acres of alpine habitat, 74 different locations supporting the species have been found in the tundra. *Senecio* was common on every major peak above 11,400 ft" (Phillips 1993). As indicated above, this species is adapted to natural soil movement due to frost action and gravity on the steep slopes of the Peaks.

HABITAT: A primary succession species on talus slopes in cracks and crevices, on fine to medium grain soils, in the alpine fellfield on the San Francisco Peaks.

ELEVATION: 11,000 - 12,300 ft. (3355 - 3752 m).

EXPOSURE: *Senecio franciscanus* grows in exposed, sunny situations, on moderate slopes of 20% to 60%, with NE to NW aspects (45-315 degrees). The largest populations and greatest densities occur on slopes with aspects ranging from S to W (180-270 degrees).

SUBSTRATE: Volcanic cinder talus slopes, on fine to medium grain soils, and thus are very gravelly sandy loams; the pH is around 6.6.

PLANT COMMUNITY: Rocky Mountain Arctic-Alpine Tundra, usually just above southwestern montane spruce-fir or bristlecone (*Pinus aristata*) forests. The vegetation is of low stature (less than 30 cm) and sparse, characterized by herbs and grasses, occasional shrubs and dwarf trees at timberline. Associated plants include: *Abies lasiocarpa* var. *arizonica* (corkbark fir), *Agropyron scribneri* (spreading wheatgrass), *Arenaria lanuginose* (sandwort), *Bromus ciliatus* (bromegrass), *Carex* spp. (sedge), *Cerastium beeringianum* (mouse-ear chickweed), *Cystopteris fragilis* (fragile bladder fern), *Festuca ovina* var. *brachyphylla* (fescue), *Helenium hoopesii* (sneezeweed), *Heuchera versicolor* (alum root), *Penstemon whippleanus* (Whipple's beardtongue), *Picea engelmannii* (Engelmann spruce), *Pinus aristata* (bristlecone pine), *Poa* spp. (blue grass), *Ribes montigenum* (gooseberry currant), *Taraxacum* sp. (dandelion), and *Thalaspi montanum* var. *fendleri* (wild candytuft). (USFWS 1996 draft).

POPULATION TRENDS: According to the USFWS in 1983, there were "approximately 5,000 individuals occurring in discrete patches in an areas of less than 2.6 square kilometers on the San Francisco Peaks." (CPC, accessed 2004). Fletcher (in Holden et al. 1984), estimates that there are probably greater than 100,00 clones of *Senecio franciscanus*, which may be low. It is unknown what the population trend is today, February 2004. Without the adverse impacts caused by man, this plant appears to have stable, viable populations and favorable recovery potential (USFWS 1996 draft).

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: LT, with critical habitat (USDI, FWS 1983)
[C1 USDI, FWS 1980]

STATE STATUS: Highly Safeguarded (ARS, ANPL 1999)
[Highly Safeguarded (ARS, ANPL 1993)]

OTHER STATUS: Not Forest Service Sensitive (USDA, FS Region 3, 1999)
[Forest Service Sensitive (USDA, FS Region 3, 1990)]

MANAGEMENT FACTORS: *Senecio franciscanus* occurs on a naturally restricted range that is vulnerable to increased recreational pressure as the human population of Flagstaff expands. The plants are locally common along a narrow saddle that connects two mountain-tops in the San Francisco Mountains. The area is heavily used for recreation and the unstable talus-slope habitat is easily disrupted. In general, Alpine tundra habitats are very sensitive to human activities. The off-trail hiking and climbing in these fragile alpine tundra areas is a threat to the species' existence, and needs to remain undisturbed. In addition to the threat from human disturbance, their unstable habitat is subject to avalanches in the winter.

CONSERVATION MEASURES TAKEN: Critical habitat includes three alpine areas of Coconino National Forest. Trail closures and alternate trail routes in tundra areas have been implemented by the Forest Service who are monitoring plots. In addition, the Coconino National Forest is preparing a Management Plan for the Kachina Peaks Wilderness Area. According to CPC (2004), "Interpreters at the top of the ski lift help to explain the reason for protecting the species and curb visitors from cutting across the plant habitat."

SUGGESTED PROJECTS: Expand San Francisco Natural Area to include *Senecio franciscanus* habitat. Status surveys need to be done to determine current population status and trends. Research is needed to study the ecological requirements, life history characteristics, and biotic factors of *S. franciscanus*.

LAND MANAGEMENT/OWNERSHIP: USFS - Coconino National Forest.

SOURCES OF FURTHER INFORMATION

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ADDITIONAL INFORMATION:

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